 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: FTW02FA262		Aircraft Registration Number: N6227J	
		Occurrence Date: 09/23/2002		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Chromo	State CO	Zip Code 81128	Local Time 2015	Time Zone MDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Piper		Model/Series PA-28R-200		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
HISTORY OF FLIGHT					
<p>On September 23, 2002, approximately 2015 mountain daylight time (all times are mountain daylight time unless otherwise noted), a Piper PA-28R-200 single-engine airplane, N6227J, was destroyed when it impacted mountainous terrain during cruise flight near Chromo, Colorado. The flight instructor and instrument-rated private pilot, who was receiving instruction, sustained fatal injuries. The airplane was owned and operated by Melcarl Aviation Company of Parker, Colorado. Dark night visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 instructional flight. The cross-country flight departed the Fullerton Municipal Airport, Fullerton, California, approximately 1345 pacific daylight time (PDT), with planned fuel stops at Prescott, Arizona, and Farmington, New Mexico, and was destined for the Centennial Airport (APA), Denver, Colorado.</p> <p>In a telephone interview conducted by the NTSB investigator-in-charge (IIC), the owner of Gerdes Aviation Services (an aviation brokerage company, in Fullerton, California) stated on the afternoon of September 22, 2002, he picked up the flight instructor and private pilot from the Ontario International Airport, Ontario, California. The two pilots, who were the president and vice president of Melcarl Aviation Company, had flown on a commercial flight from Denver to Ontario. The pilots checked into their hotel, and then the three of them went to the airport to inspect the Piper airplane. The flight instructor, who was also an airframe and powerplant mechanic, inspected "everything." The two pilots and another individual then test flew the airplane, and after the test flight, the two pilots were "happy with the airplane." One discrepancy was noted during the test flight; the rear vent was not functional. It was determined the flapper valve nut was loose; the nut was tightened, and the discrepancy was eliminated. The brokerage owner then drove the pilots back to their hotel.</p> <p>The following day, also the day of the accident, at 0700 PDT, the pilots called their financial institution regarding the financing for the airplane. At 0900 PDT, the brokerage company owner picked the two pilots up from the hotel, and all three went to the brokerage owner's financial institution to complete a portion of the purchase transaction. At 1100 PDT, the three individuals arrived at the Fullerton Municipal Airport. The flight instructor and private pilot loaded the airplane with some personal items, fueled the airplane, and then departed the airport approximately 1345 PDT. According to the brokerage owner, the pilots wanted to leave Fullerton by 0900 PDT; however, there were some problems encountered with the financing that had to be resolved that morning.</p> <p>The brokerage owner further stated the flight instructor was seated in the right seat, and the private pilot was seated in the left seat. The private pilot was going to fly the entire trip as a flight checkout in the accident airplane.</p>					
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According to a fuel receipt, at 1509 mountain standard time, the airplane was fueled with 25.30 gallons of 100LL aviation fuel at the Prescott Municipal Airport, Prescott, Arizona.

According to communications provided by the Farmington Control Tower, the airplane landed at the Four Corners Regional Airport (FMN), Farmington, New Mexico, at 1903. At 1910, the airplane was fueled with 20.2 gallons of 100LL aviation fuel at the SevenBar Four Corners fixed base operator (FBO). At 1916, one of the two pilots contacted the Albuquerque Automated Flight Service Station (AFSS), via telephone, to obtain a weather update for the flight from FMN to APA. At 1933:42, the pilot was cleared for takeoff for an eastbound departure. At 1937:09, the pilot requested a frequency for flight following, and the controller instructed the pilot to contact Denver Center on frequency 118.57.

According to information provided by the Denver Air Route Traffic Control Center (ARTCC), at 1943:17, the pilot contacted Denver ARTCC. At 1943:39, the pilot reported that his position was approximately 4 miles west of the Farmington VOR (very high frequency omni directional range station), on victor airway 210, at an altitude 9,500 feet, and the pilot requested visual flight rules (VFR) flight following. At 1944:40, the controller requested the airplane type, and the pilot acknowledged the request. At 1945:00, the controller reported the current Farmington and Alamosa, Colorado, altimeter settings. At 1945:09, the pilot acknowledged the controller's transmission, which was the last radio communication from the airplane. At 2014:31, Denver ARTCC lost radar contact with the airplane and attempts to contact the airplane were unsuccessful. The last recorded radar return of the accident airplane was at 10,700 feet msl.


Approximately 2141, an Alert Notice (ALNOT) was issued by the Denver ARTCC for the accident airplane. At 2214, the Air Force Rescue Coordination Center received an emergency locator transmission (ELT), and at 2227, they contacted the Civil Air Patrol (CAP), of Durango, Colorado. A search was initiated by the CAP, and at 0730, on September 24, 2002, the airplane wreckage was located at 37 degrees 6 minutes 5 seconds North latitude and 106 degrees 44 minutes 23 seconds West longitude. The accident site was approximately 85 miles northeast of FMN.

PERSONNEL INFORMATION

The flight instructor held a commercial pilot certificate with airplane multiengine land and sea, airplane single-engine land and sea, glider, and instrument airplane ratings. The flight instructor held a certified flight instructor certificate for airplane single-engine land, airplane multiengine land, glider, and instrument airplane. In addition, the flight instructor also held an airframe and powerplant certificate, an inspection authorization certificate, and a flight engineer certificate. The instructor was issued a second class medical certificate on March 15, 2002, with the limitation, "Holder shall wear lenses that correct for distant vision while exercising the privileges of his/her airman certificate." The flight instructor's logbook was not located; however, according to his most recent medical application, the instructor reported having accumulated a total flight time of 9,000 hours, of which, 500 hours were flown in the preceding six months.

In a telephone interview conducted by the NTSB IIC, a former student of the flight instructor reported it was "uncharacteristic for [flight instructor] to fly low over mountains." He added the flight instructor was extremely cautious, and had flown several night cross-country flights over the mountains.

The private pilot was issued his private pilot certificate on May 24, 2000, and was issued his instrument airplane rating on July 3, 2002. The private pilot was issued a first class medical certificate on March 25, 2002, with no limitations or restrictions. A review of the private pilot's logbook revealed that he had accumulated approximately 272 total flight hours. In the preceding 90 days, the pilot had logged 27 hours total flight time, and in the preceding 30 days, he had logged 15 hours of flight time. The private pilot had received most of his flight

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instruction with the flight instructor.

AIRCRAFT INFORMATION

The 1976-model Piper PA-28R-200 airplane, serial number 28R-7635323, was a low wing, retractable landing gear, semi-monocoque design airplane. The airplane was powered by a four cylinder, air-cooled, horizontally opposed, normally aspirated Lycoming IO-360-C(1)C (serial number L-15663-51A) engine, rated at 200 horsepower. The airplane was configured to carry a maximum of four occupants.

The airplane was issued a standard airworthiness certificate and was certificated for normal category operations. The airplane was registered to Melcarl Aviation Company on the day of the accident. A review of the maintenance records revealed the airframe underwent its most recent annual inspection on September 16, 2002, at a tachometer time of 833.30 hours and a total time in service of 4,851.80 hours. In addition, the most recent 100-hour inspection on the engine was completed on September 16, 2002, and the engine had accumulated 1,166.3 hours since its last major overhaul. The tachometer indication at the accident site was 841.2 hours.

An "Aircraft Purchase Agreement", which was signed and dated on September 13, 2002, by the brokerage company owner and the private pilot, was located in the airplane. According to the agreement, within 10 days of the agreement, several discrepancies were to be completed and repaired. The agreement stated the "buyer" would perform an acceptance flight before the purchase transaction was completed.

The airplane was equipped for instrument flight rules (IFR) operations, and an Arnav Star 5000 global positioning system (GPS) was installed on the airplane. The airplane was not equipped with an oxygen system or supplemental oxygen.

METEOROLOGICAL INFORMATION

According to witnesses, who were located near the accident site at the time of the accident, the weather was reported as clear sky, and the wind was calm.

At 1953, the Durango, Colorado, automated surface observing system (ASOS), located approximately 45 nautical miles west of the accident site, reported the wind from 210 degrees at 6 knots, visibility 10 statute miles, sky clear, temperature 64 degrees Fahrenheit, dew point 18 degrees Fahrenheit, and an altimeter setting of 30.20 inches of mercury.

At 2014, the Alamosa ASOS, located approximately 46 nautical miles northeast of the accident site, reported the wind from 290 degrees at 11 knots and gusting to 35 knots, visibility 2 1/2 statute miles in decreasing rain, few clouds at 5,000 feet, sky broken at 6,500 feet and overcast at 10,000 feet, temperature 64 degrees Fahrenheit, dew point 32 degrees Fahrenheit, and an altimeter setting of 30.29 inches of mercury.

The U.S. Naval Observatory reported that the moonrise on the night of the accident for Pagosa Springs, Colorado, located approximately 15 miles northwest of the accident site, was at 2024.

WRECKAGE AND IMPACT INFORMATION

The airplane impacted heavily wooded mountainous terrain at an elevation of 11,100 feet msl. The wreckage energy path measured approximately 75 feet in length on a measured magnetic heading of 060 degrees. The airplane came to rest upright on an estimated 60 degree slope, and the fuselage displayed forward-to-aft accordion type crush damage. Several trees (varying in diameter from 6 to 12 inches), located at the start of the wreckage energy path to the wreckage, displayed fresh breaks and fractures. The tree breaks and fractures were at a level height and attitude. There

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were no ground scars noted expect for the scars beneath the main wreckage.

The outboard 4 feet sections of the left and right wings were found separated and distributed along the wreckage path. The outboard 1 foot of the left horizontal stabilator was separated, and the horizontal stabilator remained attached to the empennage. The vertical stabilizer and rudder remained intact and attached to the empennage.

The cockpit and cabin area were destroyed. The left and right forward seats were removed by the search and rescue personnel. Both control yokes were separated from their respective control tubes, and the left control horns were separated on both control yokes. The engine remained attached to the engine mounts and airframe. The three blade propeller assembly was found separated from the engine crankshaft, and two blades were separated from the propeller hub.

The wreckage was recovered to Air Transport, Phoenix, Arizona, for further examination.

PATHOLOGICAL INFORMATION

Both autopsies were performed by the Archuleta County Coroners Office, Montrose, Colorado, on September 27, 2002. Specimens for the toxicological tests were taken from both pilots.

The Federal Aviation Administrations (FAA) Civil Aeromedical Institute's (CAMI) Forensic and Accident Research Center examined the specimens taken by the medical examiner. According to CAMI, testing for carbon monoxide and cyanide were not performed. The private pilot's toxicology showed no indication of performance-impairing drugs at the time of the accident.

According to CAMI, the flight instructor's toxicological tests indicated 0.226 (ug/ml, ug/g) of Diphenhydramine (commonly known by the trade name Benadryl) was detected in the blood and an undetermined amount was detected in the liver. Diphenhydramine is an over-the-counter antihistamine with sedative effects, often used to treat allergy symptoms.

TEST AND RESEARCH

On January 29 and 30, 2003, at the facilities of Air Transport and under the supervision of the NTSB IIC, representatives from The New Piper Aircraft and Lycoming examined the wreckage. The examination of the airframe revealed the left wing was separated at the airframe attach point. The leading edge displayed several semi-circular indentations consistent with tree strikes. The left fuel cell was destroyed and fragmented. The left aileron and flap were separated and bent upward. The left aileron cable exhibited broomstrawing signatures which were consistent with overload. The right wing leading edge was separated from the main spar, and the main spar was separated outboard of the landing gear attach point. The right wing displayed crushing from the leading edge to the trailing edge of the wing. The right fuel cell was destroyed and fragmented. The right aileron remained attached to its respective hinge points, and the right flap was separated and displayed damage consistent with a tree strike. Control continuity to the right aileron was established.

The empennage section was separated from the fuselage during the recovery process. The horizontal stabilator and vertical stabilizer remained attached to the empennage. The horizontal stabilator link assembly was bent and separated at the control tube assembly. The fracture surfaces of the control tube assembly at the rod end displayed 45-degree sheer lips. The rudder and elevator trim tab control surfaces remained attached to their respective attach points. Control continuity of the rudder and elevator trim was established. The elevator trim drum was measured and determined to be in a slightly nose up position.

The cockpit and cabin floor was crushed aft toward the empennage. The flight and engine instruments were separated from their respective mounting structure and destroyed. The cockpit throttle, mixture, and propeller controls were found in the full forward, midrange, and midrange

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positions, respectively. The fuel selector was found in the RIGHT tank position. The "Comm 1" frequency indication was 118.57, which is a Denver ARTCC frequency, the "Nav 1" frequency indication was 115.30, which is a FMN VOR frequency. The transponder was destroyed. The flap selector pin was broken and the selector was found in the 20-degree detent position. The three-point altimeter instrument was destroyed; however, the face plate and pointers displayed an altitude of 8,600 feet and the Kollsman Window was set at 30.24 inches of mercury.

The left and right forward seats displayed forward to aft crushing, and all four seats were separated from their respective seat tracks. The left seatbelt was found latched and the shoulder harness remained attached to the lap belt. The right seatbelt was found unlatched and the shoulder harness remained attached to the lap belt. The door handle was found in the latched position and the door pin was in the engaged position.


The engine remained attached to the airframe by the engine mounts. The engine crankcase displayed several cracks and fractures forward of the #2 and #4 cylinders. Engine continuity was established from the crankshaft to the valve train and accessory gears when the crankshaft was rotated by hand.


Thumb compression and suction was obtained on all four cylinders. The spark plugs were removed and according to the Champion Spark Check-A-Plug chart AV-27, the spark plug electrodes displayed coloration consistent with normal combustion. The magnetos and the ignition harnesses were destroyed and unable to be functionally tested. The vacuum pump was secured to its mounts, and the vacuum pump cover was removed. The vacuum pump rotor and vanes were found cracked in several locations. The engine exhaust and intake system was crushed and destroyed.


The propeller hub was separated from the engine crankshaft. Two of the blades were separated from the fractured hub and one blade remained in the propeller hub. Two of the blades displayed "S" bending and leading edge gouging, and one blade was bent toward low pitch.

ADDITIONAL INFORMATION

The wreckage was released to the owner's representative January 30, 2003.

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Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used	Runway Length	Runway Width
Runway Surface Type: Unknown					
Runway Surface Condition: Unknown					
Type Instrument Approach: Unknown					
VFR Approach/Landing: Unknown					
Aircraft Information					
Aircraft Manufacturer Piper		Model/Series PA-28R-200		Serial Number 28R-7635323	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 4	Certified Max Gross Wt.	2650 LBS	Number of Engines: 1	
Engine Type: Reciprocating	Engine Manufacturer: Lycoming	Model/Series: IO-360-C(1)C	Rated Power: 200 HP		
- Aircraft Inspection Information					
Type of Last Inspection Annual	Date of Last Inspection 09/2002	Time Since Last Inspection 7.9 Hours	Airframe Total Time 4851.8 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? Yes	ELT Operated? Yes	ELT Aided in Locating Accident Site? Yes			
Owner/Operator Information					
Registered Aircraft Owner Melcarl Aviation Company		Street Address 12636 S. Oak Creek Ct.			
		City Parker	State CO	Zip Code 80134	
Operator of Aircraft Same as Reg'd Aircraft Owner		Street Address Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Positioning					
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First Pilot Information																																																																																				
Name		City		State	Date of Birth	Age																																																																														
On File		On File		On File	On File	58																																																																														
Sex: M	Seat Occupied: Right	Principal Profession: Civilian Pilot		Certificate Number: On File																																																																																
Certificate(s): Commercial; Flight Engineer																																																																																				
Airplane Rating(s): Multi-engine Land; Multi-engine Sea; Single-engine Land; Single-engine Sea																																																																																				
Rotorcraft/Glider/LTA: Glider																																																																																				
Instrument Rating(s): Airplane																																																																																				
Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Glider; Instrument Airplane																																																																																				
Type Rating/Endorsement for Accident/Incident Aircraft? Yes				Current Biennial Flight Review?																																																																																
Medical Cert.: Class 2		Medical Cert. Status: Valid Medical--w/ waivers/lim.		Date of Last Medical Exam: 03/2002																																																																																
<table border="1"> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> <tr> <td>Total Time</td> <td>9000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	9000										Pilot In Command(PIC)											Instructor											Last 90 Days											Last 30 Days											Last 24 Hours										
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes		Second Pilot? Yes																																																																														
Flight Plan/Itinerary																																																																																				
Type of Flight Plan Filed: None																																																																																				
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Source of Briefing: Flight Service Station																																																																																				
Method of Briefing: Telephone																																																																																				

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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
FMN	1953	MDT	5506 Ft. MSL	85 NM	250 Deg. Mag.
Sky/Lowest Cloud Condition: Clear				Ft. AGL	Condition of Light: Dusk
Lowest Ceiling: None			Ft. AGL	Visibility: 10 SM	Altimeter: 30.04 "Hg
Temperature: 22 °C	Dew Point: -7 °C		Wind Direction: Variable		Density Altitude: Ft.
Wind Speed: Calm	Gusts:		Weather Conditions at Accident Site: Visual Conditions		
Visibility (RVR): Ft.	Visibility (RVV) SM		Intensity of Precipitation:		
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information					
Aircraft Damage: Destroyed		Aircraft Fire: None		Aircraft Explosion: None	
Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot	1				1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -	2				2
Other Ground					
- GRAND TOTAL -	2				2

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Administrative Information

Investigator-In-Charge (IIC)

Aaron M. Sauer

Additional Persons Participating in This Accident/Incident Investigation:

James E Mack
Aviation Safety Inspector
Federal Aviation Administration
Denver, CO 80249

Charles Little
Air Safety Investigator
The New Piper Aircraft
Chino Hills, CA 91709

John Butler
Air Safety Investigator
Lycoming
Arlington, TX 76011